Vol. I. No. 9 *Registered at the G.P.O. as a Newspaper.* FEBRUARY 27, 1941

THE AEROPLANE SPOTTER

Incorporating
THE BULLETIN OF THE OBSERVER CORPS CLUB

Edited by PETER G. MASEFIELD
M.A. (Eng.) Cantab; A.F.R.Ae.S.
Technical Editor of "THE AEROPLANE."

Proprietors:
TEMPLE PRESS LTD.

Managing Director:
ROLAND E. DANGERFIELD

Head Office:
BOWLING GREEN LANE,
LONDON, E.C.1

Telephone: TERminus 3636

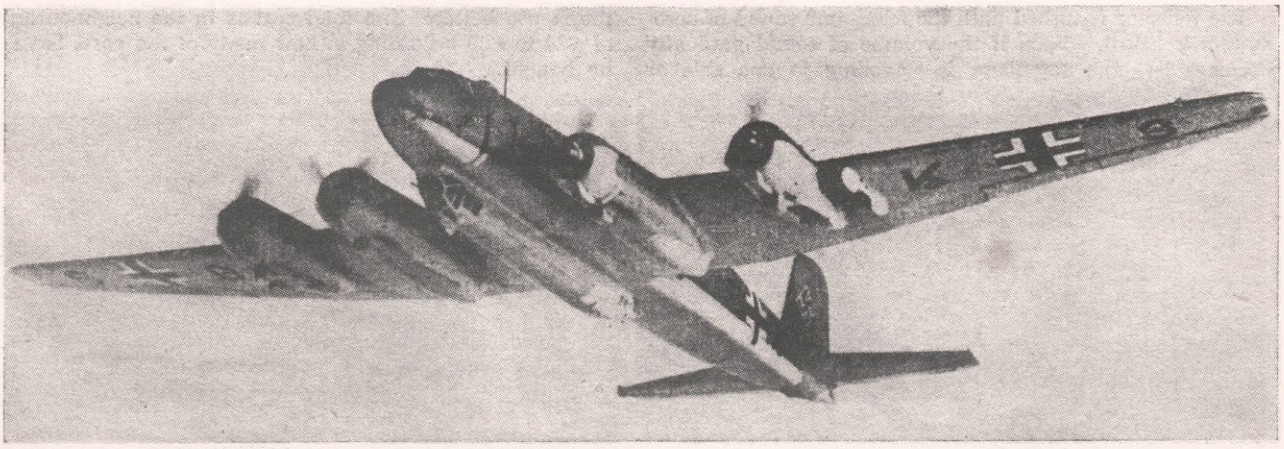
FOR THE ALERT

THURSDAYS

3D

OF ALL NEWSAGENTS
OR DIRECT FROM THE
PUBLISHERS, POSTAGE PAID

12 Months 17/4 6 Months 8/8 3 Months 4/4



THE KURIER.—GERMANY'S LATEST FOUR-MOTOR BOMBER, THE FOCKE-WULF KURIER (FOUR 1,320 H.P. BMW.801 MOTORS).

AIRCRAFT RECOGNITION can be studied efficiently in solitude. But, like all other exact sciences, proficiency is helped greatly by mutual discussion, comparison of individual difficulties, and by the broader outlook that comes from the association of a number of persons interested and practised in the same subject.

Thus there is cause for congratulation in the fact that, at the present rate of progress, a Branch of the Observer Corps Club or a local Spotters' Club will soon be available to everybody interested in aircraft identification wherever they may live.

The Observer Corps Club provides for members of the Corps and is officially recognised. The Spotters' Clubs are founded for all those not in the Corps. They have the same aims and objects and the same tests and standards of proficiency. Where possible, these local Spotters' Clubs should not be confined to the members of one works or establishment, but open to every Spotter in the locality for the exchange of ideas and the mutual benefit of all. Efforts are being made to found a central body in the same manner as that of the O.C.C. on which each Spotters' Club can be represented, and to issue certificates of proficiency to all those who pass the recognised tests.

Last week we published a list of the first four Spotters' Clubs to be registered. During the past week we have received notice of the formation of the following Clubs—ranging from Cumberland to Cornwall:—

No. 5.—MILLOM.—(Hon. Sec., J. B. Fortune, Millom Ironworks Spotters' Club, Millom, Cumberland.)

No. 6.—CROWTHORNE.—(Hon. Sec., Donald Watkinson, "Cartref," The Avenue, Crowthorne, Berks.)

No. 7.—CHESTERFIELD.—(Hon. Sec., Richard Clegg, Town Hall, Chesterfield.)

No. 8.—PENZANCE.—(Hon. Sec., R. Warren, St. John's House, Alverston, Penzance.)

No. 9.—OLDHAM.—(Hon Sec., H. Pearson, 12, Plymouth Street, Oldham, Lancs.)

No. 10.—BRAINTREE.—(Hon. Sec., E. B. Mills, Crittall Social Club, Coggeshall Road, Braintree, Essex.)

No. 11.—R.L.—(Hon. Sec., R. Smith, 117, Vista Way, Kenton, Middlesex.)

No. 12.—BLACKFRIARS.—(Hon. Sec., John P. Fitzhenry, Unilever House, Blackfriars, London, E.C.4.)

Where there are both a Branch of the Observer Corps Club and a Spotters' Club in the same district, contact and co-operation between the two can be of use to both. The standardisation of instruction and proficiency tests on aircraft recognition throughout the country will be an immense aid towards greater efficiency everywhere.

There seems to be some slight confusion about the conditions of the Proficiency Tests. Only one silhouette at a time (side or plan view for Third Class; side, plan or head-on for Second and First Class) is shown by itself for 20 seconds for identification. The 31 silhouettes shown in each Third Class Test are selected from the total of 62 side and 62 plan silhouettes of the aeroplanes laid down as the basic standard throughout the country. The list was published in THE AEROPLANE SPOTTER last week.

NEWS OF THE WEEK

SPOTTING BY SOUND

ROOF SPOTTING during the past few weeks with the prevailing grey sky and mists has been largely a question of listening for gunfire and giving the " Take Cover " signal when an aeroplane is heard approaching.

This often results in unnecessary " call outs " because of the difficulty in gauging in time the direction of travel of an aeroplane.

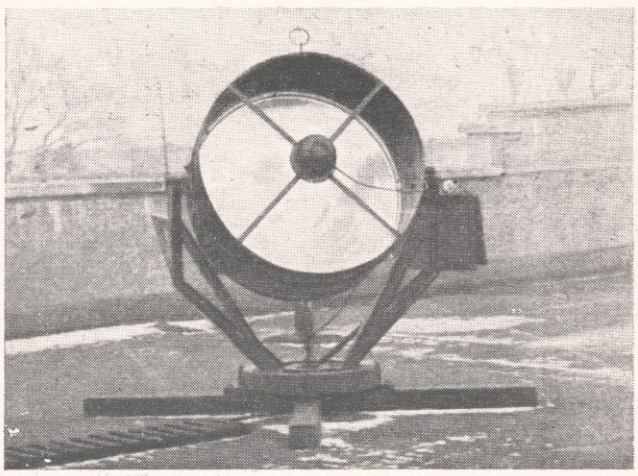
In such conditions a sound detector has been found to be of much practical help. A sound detector developed by Benjamin Electric Ltd. was made by fitting a sensitive microphone at the focal point of a parabolic reflector from a small searchlight. The sound picked up in the microphone is amplified in a simple four-valve amplifier and then heard in earphones.

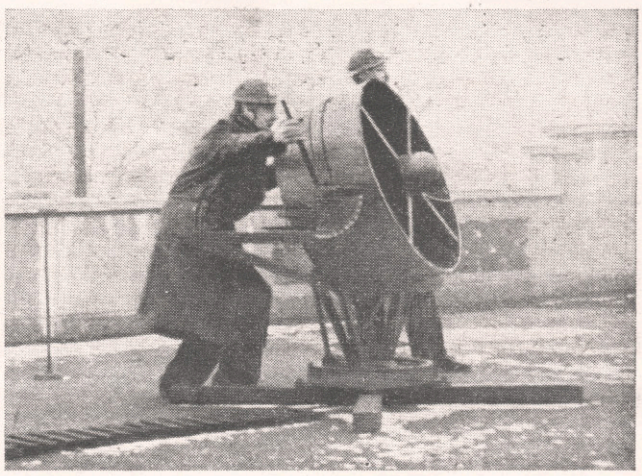
The reflector is turned until the maximum sound of aeromotors is heard. Then if the volume of sound gradually becomes less the aeroplane is travelling to one side or away from your area and could not bomb your particular building on its present course. If the volume of sound increases the aeroplane is travelling directly towards you and the " Take Cover " signal should be given at once.

After a little practice in focusing the detector on an aeroplane, its direction of travel can be judged quickly.

For those who might like to make up a similar outfit to that shown in the photographs the following are the principal parts required.

A 3-ft. parabolic reflector with a Rothermel piezo crystal microphone suspended on rubber at the focal point of the reflector. The valve amplifier should be selected to match the microphone and headphones, and the latter should preferably be of the low resistance type because they stand rough use better. The total cost is in the neighbourhood of £20 to £30 according to how many of the parts have to be bought.





A SOUND LOCATOR.—This apparatus developed by Benjamin Electric Ltd., of Tottenham, and constructed from a searchlight reflector with microphone attached has proved of practical value in locating the track of aeroplanes in bad visibility or at night.

WEEKLY NOTES FOR SPOTTERS—IX

By R. A. Saville-Sneath

(Member of the Observer Corps and a Founder Member of the Hearkers' Club)

WHILE everyone is keyed up for the long-expected invasion, Spotters are earnestly engaged in mastering the outlines of an invading host from the U.S.A. The more there are the better we shall be pleased, but brains reel under the impact of the 56 different varieties.

Real variety is spice to the Spotter. It is the similarity of many alleged varieties that promotes strong language.

Two almost identical types, for example, come to us under different constructors' names. The Douglas 8A-5 is a modification of the Northrop A-17A. The Northrop Aviation Corporation became the El Segundo Division of the Douglas Company in 1937. The Northrop A-17A was a product of the Northrop Aircraft Corporation before it was absorbed. In general design and dimensions the Douglas 8A-5 is practically indistinguishable from the Northrop A-17A, but the latter has a Twin Wasp Junior radial motor of only 825 h.p., whilst the 8A-5 has a 1,200 h.p. Wright Cyclone giving a top speed of 265 m.p.h.—some 44 m.p.h. better than the A-17A.

Both machines are of the attack bomber or dive bomber type and closely resemble the Vought-Sikorsky V-156 or Chesapeake, as it is called in the R.A.F.—also a dive bomber powered by the 825 h.p. Twin Wasp Junior radial motor.

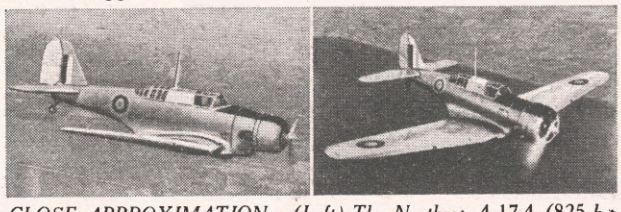
All three types are low-wing monoplanes with single fin and rudder. The wings in each case have clearly defined straight centre-sections with dihedral and taper in the outer sections only. The fuselage and cockpit lines are similar.

As Spotters have in practice only a remote chance of picking up minor variations, such as the greater width of the opaque panel separating the two sections of the cockpit of the 8A-5, that machine and the A-17A are best regarded as a single type When they are compared with the Chesapeake the following recognition points can be observed:—

Chesapeake: Wings of smaller span and slightly lower aspect ratio. The straight centre-section is noticeably longer in proportion to the span and the wings, which have less dihedral, are wider at the tips. Although the Chesapeake's span is only 42 ft. against 47 ft. 8 ins. of the Northrops, its fuselage is actually a foot or so longer. This disproportion between the lengths of the respective fuselages accentuates the impression of the relatively short span of the Chesapeake's wings. The tail unit is angular, both in side and plan views. The backward retracting undercarriage might be distinguished under favourable conditions.

Douglas 8A-5 and Northrop A-17A: In addition to the comparative points which have already been mentioned, the unusually forward position of the inwardly retracting undercarriage should be distinguishable in a side, or plan view of these types. The tailplane is placed farther forward and the elevators are cut away. The large single fin and rudder show distinctive Douglas lines, closely resembling those of the DC-2.

If the connection between the Douglas and Northrop designs is borne in mind, it may help in distinguishing between these types and the Chesapeake—provided that one is reasonably sure of knowing the tail of the DC-2. On the other hand, the narrower and more angular outlines of the fin and rudder of the Chesapeake readily suggest a *peak*. The pointed extremity of the fuselage which projects aft of the rudder, rather in the manner of a " parson's nose," may convey a similar suggestion.



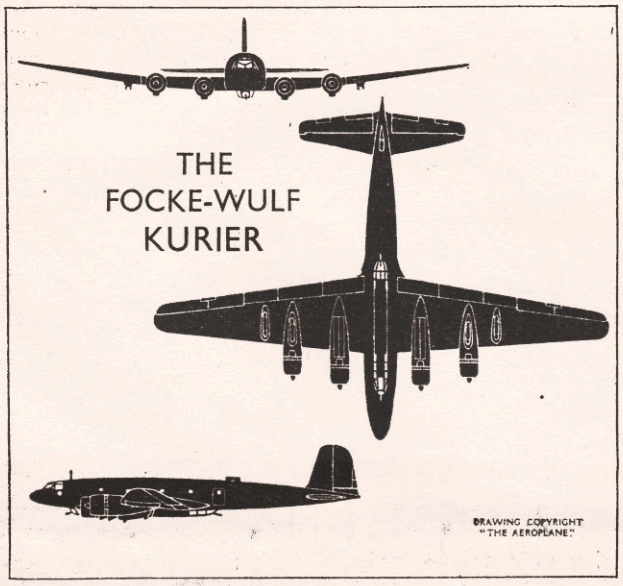
CLOSE APPROXIMATION.—(Left) The Northrop A-17A (825 h.p. Twin Wasp Junior) which does 221 m.p.h.; (right) the Douglas DB-8-A5 (1,200 h.p. Twin Wasp) which does 265 m.p.h.

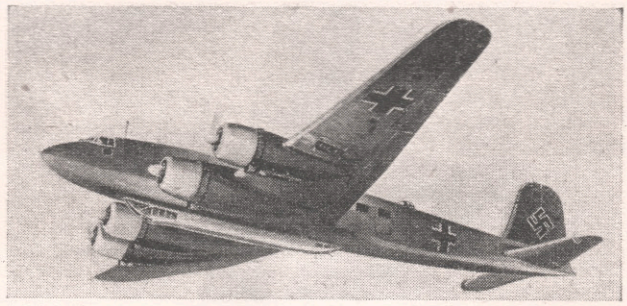
AIRCRAFT IN THE NEWS—IX

THE FOCKE-WULF Fw 200K—THE KURIER

DEVELOPED from the Focke-Wulf Condor civil transport the new Focke-Wulf Kurier, the Fw 200K, is being used by the enemy for sweeps over the North Atlantic in an effort to break our shipping route to and from the U.S.A. and Canada. Focke-Wulf Kuriers take off each day from aerodromes between Bordeaux and Brest and fly non-stop around Ireland and the North of Scotland in quest of British merchant ships. The average cruise amounts to 1,800 miles and that distance is covered in 8 to 11 hours, according to the winds. All the time the Kuriers maintain radio contact with lurking U-boats, for which they act as spotters.

The Kurier is modified from the Condor to carry a heavy bomb load and take more powerful motors. The four 1,320 h.p. B.M.W. 801 air-cooled 14-cylinder two-row radials





(which are really Pratt and Whitney Twin Wasps built under licence acquired from the U.S.A. before the War) give it a top speed of 279 m.p.h. at 18,100 ft. in spite of the extra military gear.

A long bomb bay is slung under the fuselage and can accommodate up to 6,000 lb. of bombs. The bomb aimer's compartment is at the nose of this underslung bulge, and a gun position at the trailing edge. More bombs can be slung on external racks under the outboard motor nacelles and outboard of them. An electrically operated four-gun turret is on top of the fuselage behind the wings—the first turret to be produced and fitted by the Germans. Although there is some forward armament, the nature of this is not precisely known, except that it includes cannon.

A crew of six is usually carried.

DIMENSIONS.—Span 108 ft. 6 ins.; length 78 ft. 3 ins.; height 23 ft. 4 ins.; wing area 1,290 sq. ft.; aspect ratio 9.1.

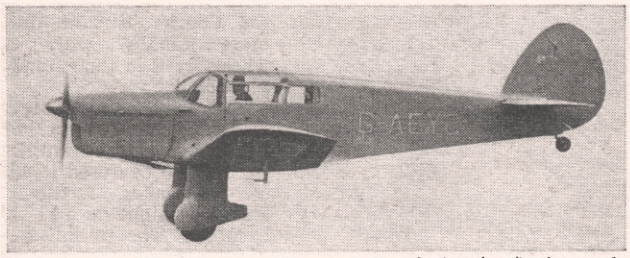
WEIGHTS (approx.).—Empty 28,700 lb.; loaded 44,100 lb.; wing loading 34.2 lb. per sq. ft.

PERFORMANCE.—Top speed 279 m.p.h. at 18,100 ft.; range 2,300 miles at 224 m.p.h. at 19,700 ft.; initial climb 940 ft. per min.; service ceiling 28,850 ft.

POINTS OF RECOGNITION.—Low wings of high aspect ratio. Most of taper at trailing edge. Four motors mounted well forward of wing. Long narrow bulge half the length of fuselage under wings. Big square-cut single fin and rudder. Gun turret on top of fuselage aft of wings.

CIVIL IDENTIFICATION—IX

THE PERCIVAL PROCTOR (Service) or VEGA GULL II (Civil)



"Aeroplane" photograph

ORIGINALLY produced in November, 1935, for private owners and as a light transport type, the Percival Vega Gull II (one 205 h.p. D.H. Gipsy Six II motor) has been adopted by the Royal Air Force and Fleet Air Arm as a communications type and is named by them the Proctor. Many record-breaking flights have been made by Vega Gulls across the Empire and at flying meetings in France and Italy; a Vega Gull has flown the Atlantic and won the King's Cup Air Race; and C. W. A. Scott and Giles Guthrie won the Portsmouth to Johannesburg air race in a Vega Gull in 1936. The Vega Gull and Proctor are similar except that the Proctor has accommodation for a pilot and two passengers instead of three passengers, and a curved windscreen instead of the straight-sided type in the earlier Vega Gull.

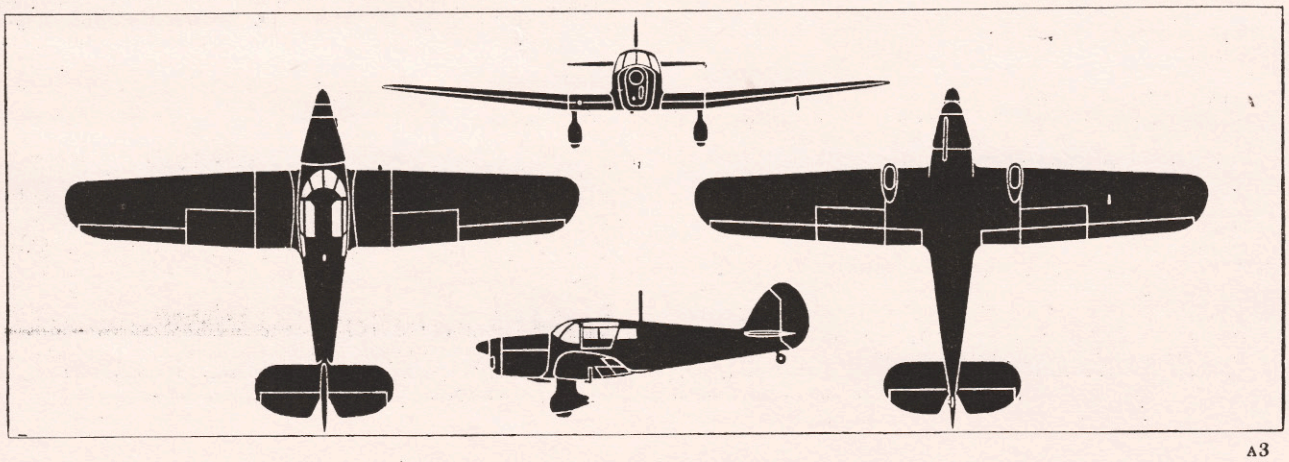
The Proctor is a low-wing cantilever cabin monoplane of wood construction with plywood covering. It has a single fin and rudder and a fixed faired undercarriage. The 205 h.p. de Havilland Gipsy Six II motor drives a controllable-pitch airscrew.

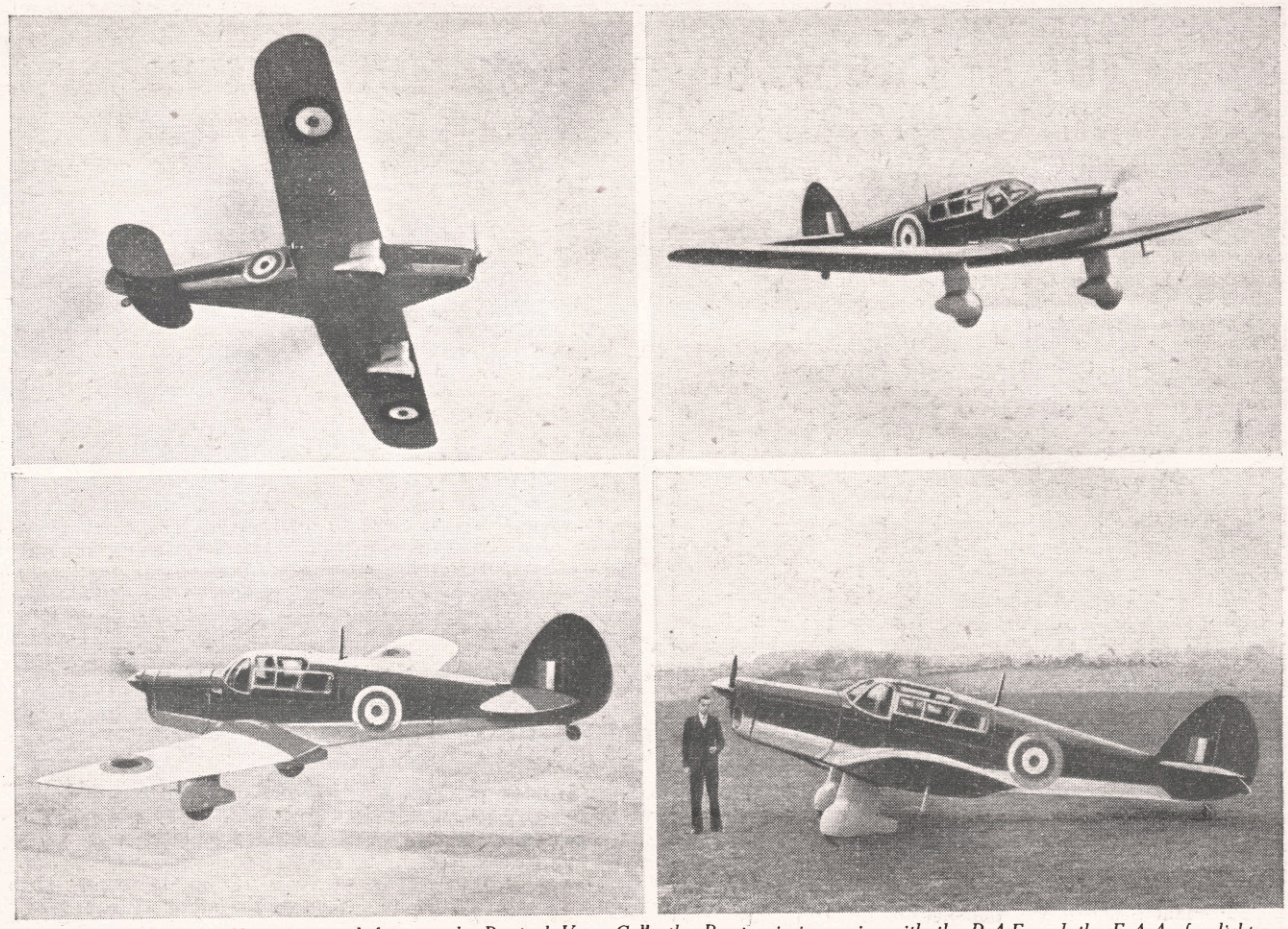
DIMENSIONS.—Span, 39 ft. 6 ins.; length, 25 ft. 10 ins.; height, 7 ft. 6 ins.; wing area, 197 sq. ft.; aspect ratio, 7.95.

WEIGHTS.—Empty, 1,875 lb.; loaded, 3,250 lb.

PERFORMANCE.—Top speed, 180 m.p.h. at 1,000 ft.; range, 660 miles at 170 m.p.h. at 7,000 ft.; initial climb, 1,020 ft. per min.; service ceiling, 17,000 ft.

POINTS OF RECOGNITION.—Low-wing cabin monoplane with almost rectangular wings and rounded tips tapering to the trailing edge. Wide fuselage with deep narrow nose. Rounded single fin and rudder. Tailplane has straight leading edge and cut out in trailing edge. Tailplane set level with top of fuselage. Fixed and faired undercarriage with very wide track.



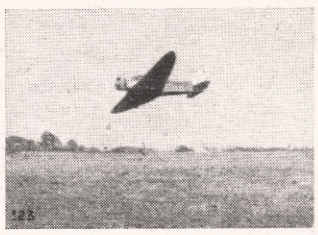


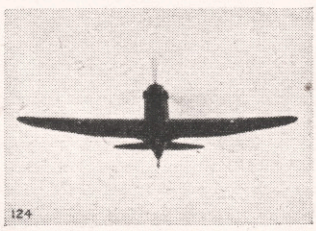
THE PROCTOR.—Known in civil form as the Percival Vega Gull, the Proctor is in service with the R.A.F. and the F.A.A. for light communications work. The 205 h.p. de Havilland Gipsy Six II motor gives a cruising speed of 170 m.p.h. at 7,000 ft.

Aircraft Recognition

AN AIRSPEED COURIER (one 240 h.p. Armstrong Siddeley Lynx IVc radial motor) now used for ferrying ferry-pilots, and a Boulton Paul Defiant two-seat fighter (1,030 h.p. Rolls-Royce Merlin III motor) were last week's recognition tests.

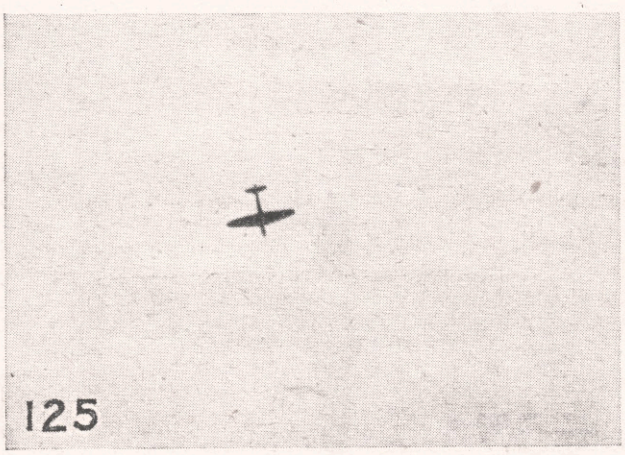
The Courier can be recognised in the view shown by the prominent radial motor with Townend ring cowling, the upstanding windscreen of the enclosed cabin, the tapered wings with pointed tips, the deep rear end of the fuselage and the big single fin and rudder. Although the undercarriage is seen retracted in the photograph the Courier is now flown more usually with the wheels fixed in the extended position.

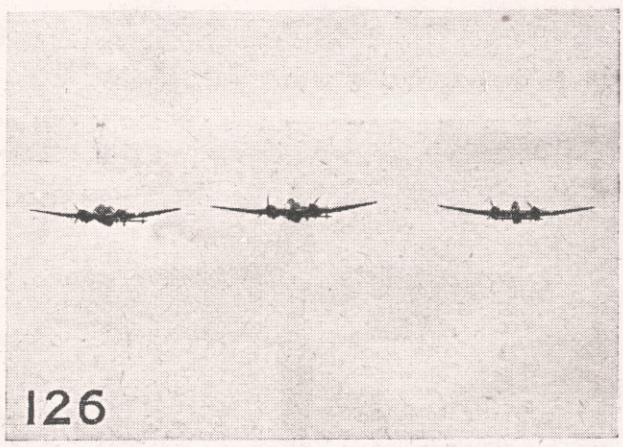




LAST WEEK'S PROBLEM.—(Left) An Airspeed Courier and (right) a Defiant.

The head-on view of the Defiant provided a fine exercise in recognition. Those who confused it with a Hurricane, Battle or Fulmar might well be excused. The trailing edge of the wing provides the clue to identity. The break in the contour where the outer section of the wing is swept forward at the trailing edge is a prominent feature.





FOR IDENTIFICATION IX.—Two more photographs to give practice in the recognition of allied and enemy aeroplanes. What they are and notes on their characteristics will be published with two more photographs next week.

THE OBSERVER CORPS CLUB

(FORMERLY THE HEARKERS' CLUB)

Hon. Secretaries are earnestly requested to keep their reports as brief as possible because of the growth of the Club and the acute paper shortage.

BRANCH 5 (EVESHAM)

Hon. Sec.: F. Dobson, Farnham House, Broadway, Worcs.

AFTER a disappointing time in January, when we were snowed up and unable to hold our meetings, it was good to forgather in Evesham again, especially when momentous events, such as the formation of the new Constitution, had taken place in the meantime. Some 50 members turned up, together with our Searchlight friends, and a few Home Guards.

We were pleased to welcome Mr. R. O. Dowdeswell, the Hon. General Secretary of the Club, who spoke to us on the new Constitution. The meeting fully endorsed the action of Headquarters in negotiating with the Observer Corps, and adopted the Constitution.

Mr. C. A. Lakin, O.G.O., Group 5, lectured to us on Identification, and with the assistance of silhouettes many points went home. Nearly all the posts affiliated to the Branch now have their own study circle, and everyone is getting down to the job of mastering identification. Unfortunately, we were unable to hold a Test because of lack of slides, but we hope to have a full contest next meeting.

Our meeting concluded with Instructional Sound Films. Under the terms of the new Constitution our financial year ends on March 31, consequently our next meeting on March 16 will be our Annual General Meeting, when new officers will be appointed.

BRANCH 8 (ANGUS)

Hon. Sec.: D. A. Gardner, "Tantallon," 81, Keptie Road, Arbroath, Angus.

THE monthly meeting was held on Sunday, Feb. 2, at the Meffan Hall, Forfar. The Provost of Forfar encouraged us by his presence.

The main business was the viewing of identification films, which proved of great value. One hundred and twenty-one Members and Honorary Members attended, some demonstrating their enthusiasm by coming through snow all the way from distant Blair Atholl.

BRANCH 9 (KENDAL)

Hon. Sec.: C. E. Hoggarth, "Fairhaven," Kent Lea, Kendal, Westmorland.

THE usual monthly meeting was held on Feb. 16 in the Fleece Inn, Kendal. We were glad to see our President, Col. Cooper, O.G.O., Capt., Montgomery, three visitors from Seascale, one from Bootle and one from Broughton Posts, all of whom were warmly welcomed. Our own members totalled 52, so with our Chairman, Mr. T. A. Edmondson, A.O.G.O., and the visitors, we had an increase again of eight on our last meeting and of 21 on our first.

Under the new Constitution, Mr. A. T. Gates, Toc.2, was elected our Vice-Chairman and the other three members to our Branch Council were Mr. Dobson of X2, Mr. Blackhurst of W3 and Mr. Hall of Toc.3.

Mr. Hall of Toc.3 was elected to serve on the Area Council and also to attend the Annual General Meeting of the Observer Corps Club as our Delegate.

The Third Class Certificate test was taken with the use of our epidiascope and the following members passed:—

S. Murray, Toc.2, 31 points; R. W. Hunt, Toc.2, 30; J. A. S. Jamieson, Toc.2, 29½; C. E. Hoggarth, Toc.2, 29½; R. D. Ingall, Toc.2, 28; T. Wilson, Toc.2, 28; J. H. Capstick, Toc.3, 31; E. Powell, Toc.3, 31; J. P. Lowis, Toc.3, 31; R. Metcalfe, Toc.3, 31; W. R. Woodburn, Toc.3, 30; R. Greasley, Toc.3, 30; A. Hall, Toc.3, 30½; T. Towler, Toc.3, 29½; C. W. Johnson, Toc.3, 29; H. Foster, Toc.3, 29; H. Wilkins, Toc.3, 27; J. Robinson, Toc.3, 26½; R. D. Martin, Toc.3, 25; J. Heelis, W.1, 31; E. Langman, W.1, 30; R. Omerod, W.1, 29½; J. King, W.1, 29½; R. Murphy, W.1, 29; B. Tyson, W.1, 27½; N. Hardisty, W.1, 26½; H. Wills, W.2, 31; J. Woodburn, W.2, 30; W. Palmer, W.3, 26; L. G. Powell, X.2, 31; J. T. Cookson, X.2, 31; W. P. Dobson, X.2, 30½; J. Nanson, X.2, 29; F. Newsome, X.2, 29; C. Handley, X.2, 27.

The Hon. Sec. read a letter he had received from the Harborough Publishing Co. Ltd., with which they sent a complimentary copy of a very good book on "Fighting 'Planes" for the attention of all Members. It was decided to pass the book round the affiliated Posts.

BRANCH 11 (OTLEY)

Hon. Sec.: F. D. Marshall, Caressa House, King Street, Leeds, 1.

THE Club has now got into its stride and has a flourishing membership of 250.

Our first meetng was held on Sunday, Feb. 16, at the Westbourne Hotel, Otley, when we had an attendance of 144.

Flight Lieut. A. C. Watkins, R.A.F., gave an interesting show of identification sound films, after which a large number of those present took part in the Third Grade Test. Mr. James Downs and Capt. J. Barrett, A.O.G.Os., kindly conducted the test and 81 members were successful. Ten of these secured 100 per cent.

RESULTS.—*S3 Post:* H. Seed, W. Houseman, G. E. Nelson, R. Light, L. M. Storey, J. Simpson, E. Kent, G. W. Archer, H. Smith. *S4 Post:* W. J. Bowman, V. R. Dawson, J. Sellers. *T1 Post:* F. J. Holmes (100 per cent.), A. J. Carlton (100 per cent.), P. Taylor (100 per cent.), L. Marsden (100 per cent.), F. D. Marshall (100 per cent.), F. H. Wood (100 per cent.), J. B. Ives, R. H. Wade, I. Turner, J. C. Binns, W. Smith. *T2 Post:* B. Hartley, F. R. Farrar, W. McDonnell, M. Rock, H. Sykes, C. S. Smith, F. S. Inman, B. H. Walker, W. Ward, J. R. L. Marriner, H. Giffard Smith. *T3 Post:* J. C. Pickup, E. Green, A. Jacques, H. S. Whitaker, H. Hope. *V1 Post:* T. S. Carruthers, H. W. Greenwood, E. Millard, C. C. Tapp (100 per cent.), W. W. Jackson, F. W. Bailey, E. E. Browne, S. C. Broughton, G. R. Hart, L. Lister. *V3 Post:* F. W. S. Malir (100 per cent.), J. Blackburn (100 per cent.), C. Clough (100 per cent.), H. A. S. Malir, A. L. Hitt, A. R. Bell, R. Grice, W. Watmough, C. P. Wightman, G. Robinson, A. Shaw, H. P. Moorhouse, G. Franklom. *V4 Post:* E. Sedgwick. *W1 Post:* C. Winterburn, J. Morrell, H. D. Waddington, G. O. Feather, F. Leach. *Z1 Post:* A. W. Scriven. *Z3 Post:* H. Hancock, A. L. Middleton, G. H. Rawling. *Centre:* C. J. Burras, D. R. Andrews.

The following additional members qualified:—*T2 Post:* N. Sunderland, H. S. Feather. *T1 Post:* G. V. Cole. *Z1 Post:* A. E. Dawson, R. J. L. Ball. *Z3 Post:* A. Barrett, W. Cole.

Our Chairman, Mr. H. Giffard Smith, has generously presented a Silver Cup as a trophy to be competed for in an Interpost Competition. The first round will be contested at our next meeting on March 2, when it is hoped that all Posts and Centre will compete.

Our thanks are due to "Mine Host," Mr. Jim Bacon, for his hospitality and his successful efforts to deal with the large crowd.

BRANCH 12 (CAMBRIDGE)

Hon. Sec.: H. J. Rumsey, 29, Chesterfield Road, Cambridge.

OUR monthly meeting was held on Feb. 16 at the Cambridge University Air Squadron headquarters. There were about 50 members present. The new Constitution was discussed and unanimously approved.

The Deputy Controller of Centre, Mr. H. G. Newman, gave an interesting talk on Height Finding by Sound, which was followed by our Competition Secretary, Mr. E. C. Chamberlain, with a talk, aided by epidiascope illustrations, on German troop-carrying aircraft.

In the Class III Test the following passed:—

D. C. Allen (Aero Res.), J. H. Brignall (C.U.A.S.), R. Clark (B3), R. Doe (D3), J. Kerridge (K3), W. McCroddan (Aero Res., 31 pts.), K. Perry (Aero Res.), W. Veasey-Smith (E3), J. E. Vickery (Centre, 31 pts.), L. Yarrow (C2).

A vote of thanks to Wng. Cmdr. H. J. Kirkpatrick for the use of the C.U.A.S. headquarters concluded the meeting.

FORTHCOMING EVENTS

Mar. 2.—Crowthorne.—O.C.C. Branch 6 (Crowthorne).—Talk by K. Roberts, and talk by a Fighter Command Press Liaison Officer. Only the first part of this meeting, up to and including tea, will be open to non-Observer Corps.—At Wellington College.—14.30 hrs.

Mar. 2.—Angus.—O.C.C. Branch 8 (Angus).—Talk by A. McNiven, H.O.—Election of Committee Members and Area Council Debate.—Third Class Test.—At the School, Friockheim.—15.00 hrs.

Mar. 2.—Otley.—O.C.C. Branch 11 (Otley).—Talk by Sqdn. Ldr. Wildey, D.F.C., on Operational Flying.—Second and Third Class Tests.—At the Westbourne Hotel.

Mar. 2.—Bishops Stortford.—O.C.C. Branch 21 (Bishops Stortford).—Meeting at Falcon Hotel.—10.00 hrs.

Mar. 2.—Boroughbridge.—O.C.C. Branch 25 (Boroughbridge).—Inaugural Meeting.—At the Crown Hotel.—10.30 hrs.

Mar. 4.—Holywell.—O.C.C. Branch 14 (Holywell).—Meeting on new Constitution.—At King's Head Hotel.—19.30 hrs.

Mar. 5.—London.—Spotters' Club No. 12 (Blackfriars).—Inaugural Meeting at Unilever House, E.C.4.—18.00 hrs.

Mar. 9.—Shirley.—O.C.C. Branch 2 (Shirley).—Talk by S. P. Cushing on "General Principles of Identification."—Third Class Test.—10.00 hrs.

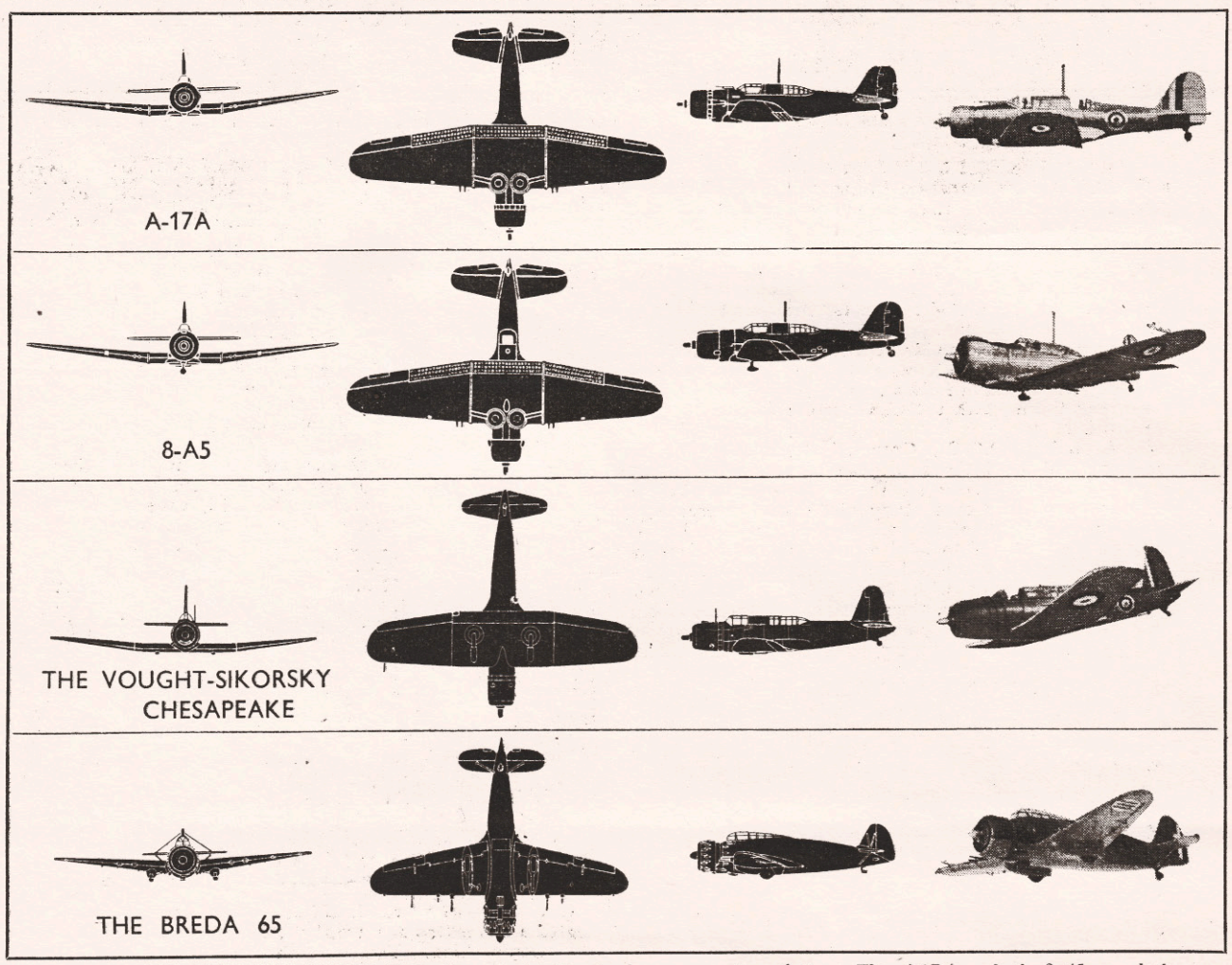
Mar. 9.—Watford.—O.C.C. Branch 3 (Hendon).—Talk by Peter Masefield on "The Evolution of the Single-seat Fighter 1913-1941," and "Centre Procedure" by G. R. Bolton.—Third Class Test.—At Watford Public Library.—10.30 hrs.

Mar. 16.—Otley.—O.C.C. Branch 11 (Otley).—Show of flying films at local cinema.—15.00 hrs.

April 6.—Otley.—O.C.C. Branch 11 (Otley).—Talk by Mr. Leonard Taylor on R.A.F. Training.—Third and Second Class Tests.—At the Westbourne Hotel, Otley.

April 13.—Shirley.—O.C.C. Branch 2 (Shirley).—Annual General Meeting.—Third Class Test.—Talk by Peter Masefield.—10.00 hrs.

AIRCRAFT COMPARISON—IX.—SINGLE MOTOR "ATTACK BOMBERS."



IDENTIFICATION HEADACHES.—These four single-motor bombers are most confusing. The A-17A and the 8-A5 are both derived from the Northrop A-17 and differ chiefly in the power of their motors. The drawings are all reduced to the same scale.

THE SPOTTERS' GLOSSARY OF AERONAUTICAL TERMS

BORA.—A cold, squally wind which blows in the Winter from the North East on the Northern shore of the Adriatic and Ægean Seas.

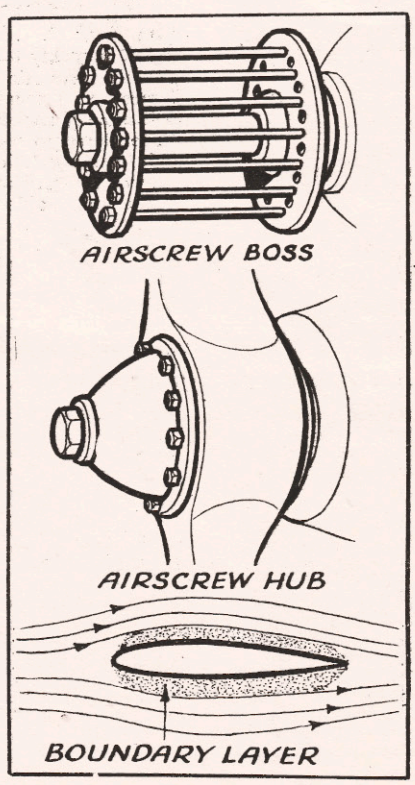
BOSS.—Used only with a fixed-pitch airscrew, is a kind of collar which fits on to the airscrew shaft and on to which the hub of the airscrew fits. Should not be confused with the airscrew HUB which, in a fixed-pitch and in a controllable pitch airscrew, is the central portion on to which the roots of the blades are attached.

BOUNDARY LAYER.—The thin layer of air immediately surrounding the surfaces of an aeroplane or airship. This layer is slowed down in flight by the friction exerted on the surface as it moves through the air and represents an important element in drag.

BOUNDARY LIGHT.—A light, of which there are usually a number, arranged round the limits of an aerodrome. It marks the extent of the landing area.

BRACING.—A system, usually consisting of struts and/or wires by which a compound structure is made rigid.

BRAKE HORSE - POWER.—(Abbreviated b.h.p.) The horse-power available at the airscrew shaft of any aero-motor. It differs from the INDICATED HORSE-POWER by the power needed to overcome the internal friction of the motor. The term is derived from the convenient method of measuring the horse-power developed at the airscrew shaft by running the motor against calibrated brake.



BREEZE.—A wind of moderate strength. In the Beaufort Scale graduated from "Light Breeze" to "Fresh Breeze," for a wind speed of from 4 to 24 m.p.h.

BUBBLE SEXTANT.—A sextant used in air navigation in which a bubble level is provided to afford an artificial horizon for determining the altitude of a celestial body.

BUFFETING.—An irregular oscillation of any portion of an aeroplane distinct from flutter, because it is produced and maintained by the eddying wake behind some other part of the aeroplane, whereas flutter is an unstable oscillation in a normal airflow. Buffeting has usually occurred in the tail-plane of a low-wing monoplane when it was literally buffeted by the wake from the mainplanes at high angles of incidence or with flaps down.

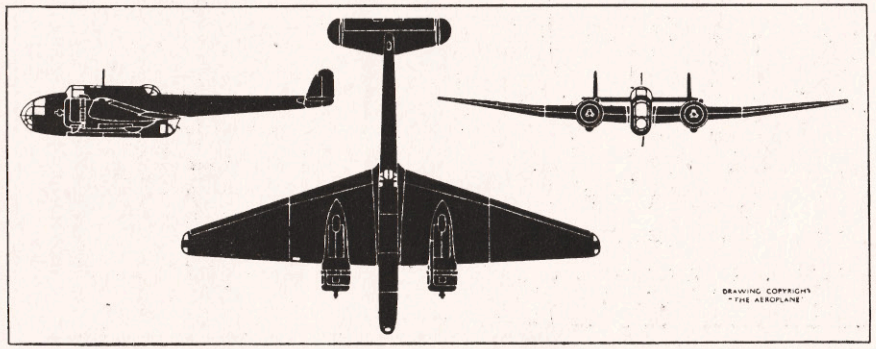
BULKHEAD.—A solid partition which is used to isolate one part of a structure from another. It is used particularly with regard to the FIREPROOF BULKHEAD behind an aero-motor.

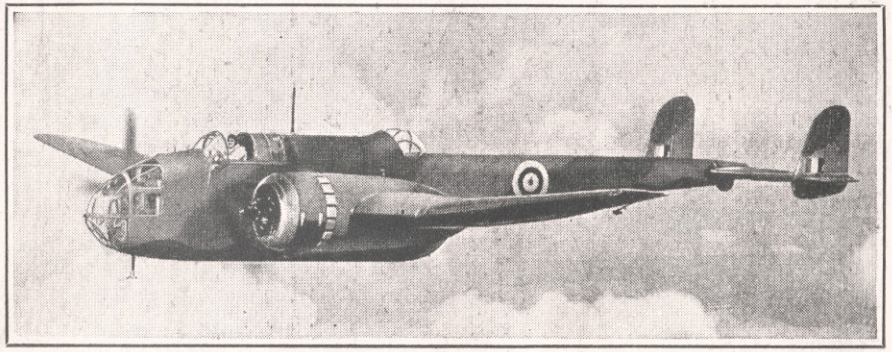
BUMP.—A colloquial term used to denote any sudden vertical or lateral movement of an aeroplane caused by thermal or eddy currents. Often erroneously referred to as "air pockets."

(To be continued.)

AEROPLANES IN DETAIL—VI.

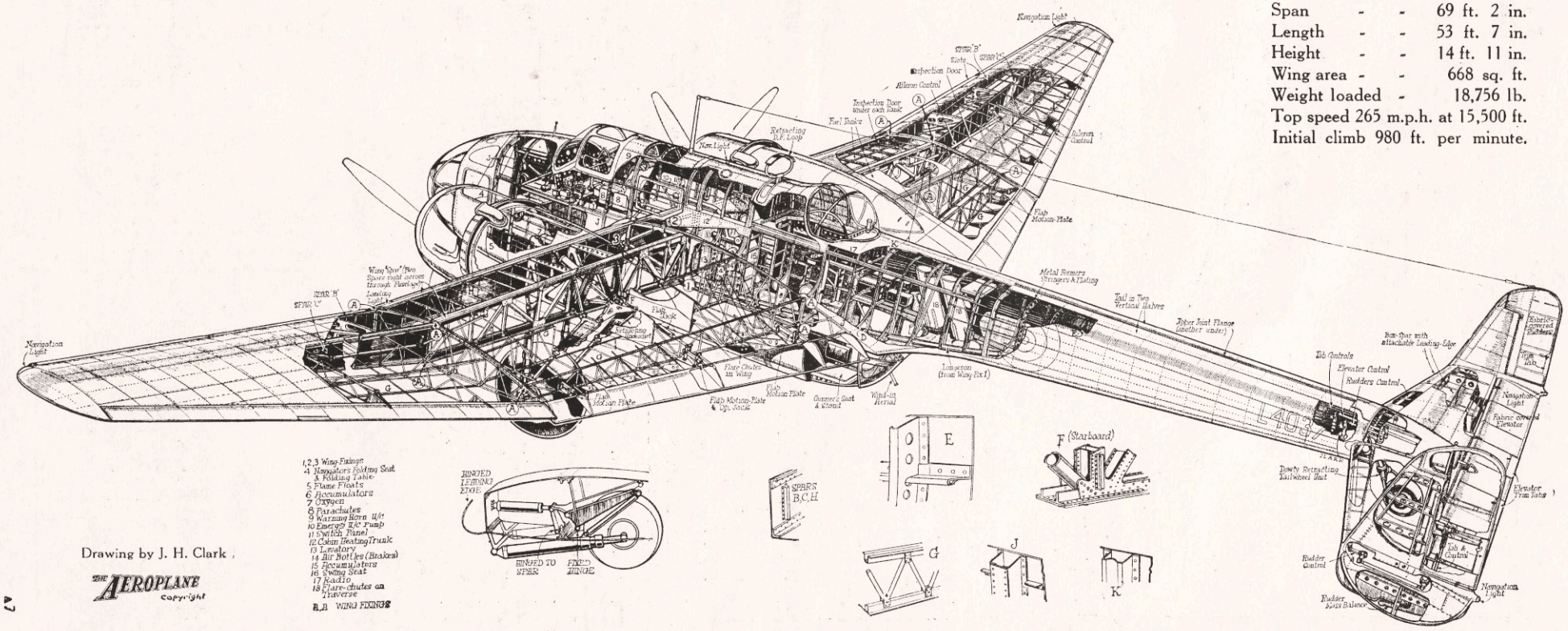
THE HANDLEY PAGE HAMPDEN BOMBER (two 1,000 h.p. Bristol Pegasus XVIII motors)





Span	- -	69 ft. 2 in.
Length	- -	53 ft. 7 in.
Height	- -	14 ft. 11 in.
Wing area	- -	668 sq. ft.
Weight loaded	-	18,756 lb.

Top speed 265 m.p.h. at 15,500 ft.
Initial climb 980 ft. per minute.

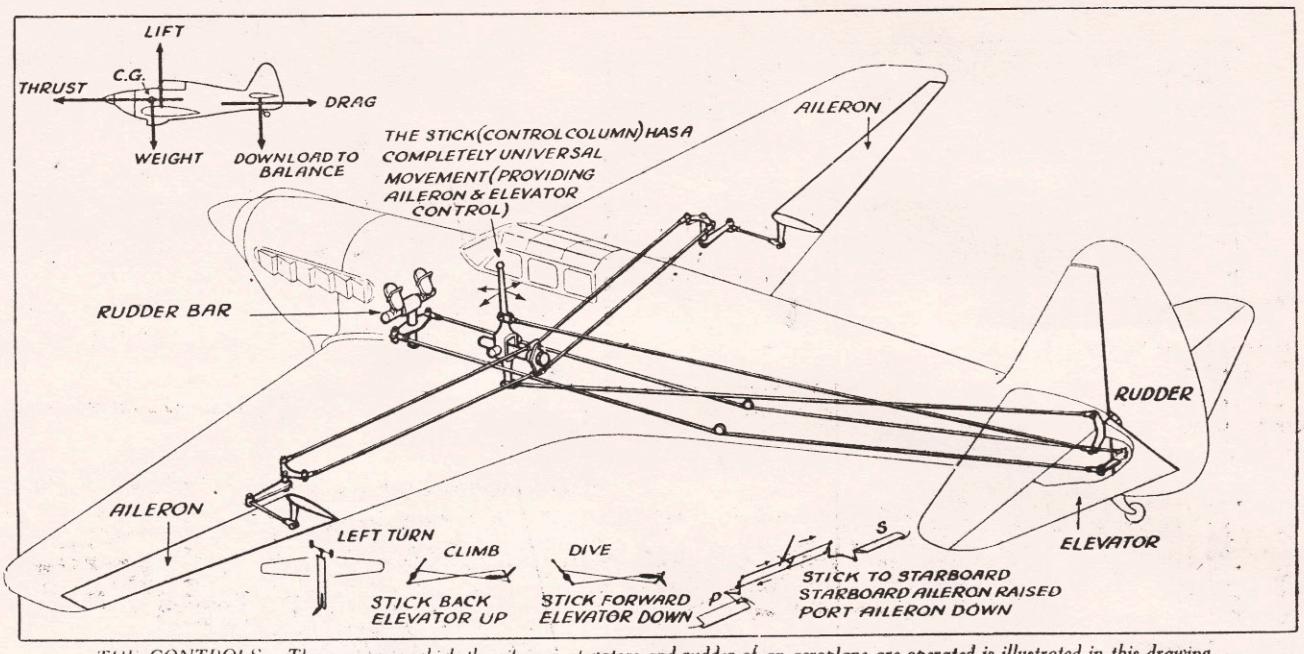


1,2,3 Wing Fixings
4 Navigator's Folding Seat & Folding Table
5 Flame Floats
6 Accumulators
7 Oxygen
8 Parachutes
9 Warning Horn W/T
10 Emergency H/C Pump
11 Switch Panel
12 Cabin Heating Trunk
13 Lavatory
14 Air Bottles (Brakes)
15 Accumulators
16 Swing Seat
17 Radio
18 Flare-chutes on Traverse

R.B. WING FIXINGS

Drawing by J. H. Clark.

THE AEROPLANE Copyright



THE CONTROLS.—The manner in which the ailerons, elevators and rudder of an aeroplane are operated is illustrated in this drawing. The movements of the control column are instructive.

Mental Aerobatics—IX

FIVE different types of aeroplane were flown by:—Stammers, Greensted, Bleaney, Hall and Owner. For each of these aeroplanes V = top speed in m.p.h., A = wing area in sq. ft., S = span in ft., and P = horse power for take-off.

(i) 8V. Greensted = (10A. Bleaney + V. Owner).

(ii) (S. Hall – S. Stammers) = (P. Stammers – 4A. Bleaney).

The five aeroplanes were a Whitley, a Battle, a Defiant, a Hurricane, and a Proctor. Who flew which?

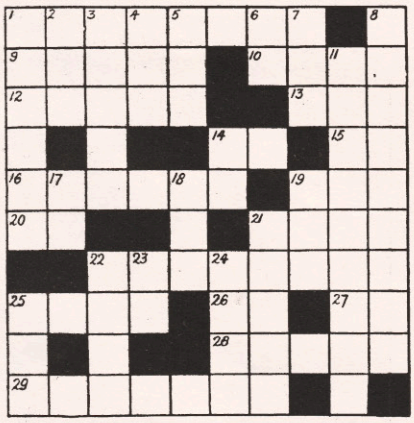
Solution to Mental Aerobatics—VIII

GIBBS SMITH flew the Hudson, Beaverbrook the Lysander, Chapman the Whitley and Bradley the Battle.

Recognition Test Cards

PRINTING of the set of silhouettes for the Third Class Test is now in progress. It has been delayed longer than we had hoped, to incorporate the very latest information on such aeroplanes as the Fw Kurier, Ju 89, Spitfire III, and to check the complete accuracy of the older types, so that these sets of silhouettes may be the most accurate yet issued. By next week we hope to be able to announce details of price and the date of delivery.

An Aeronautical Crossword

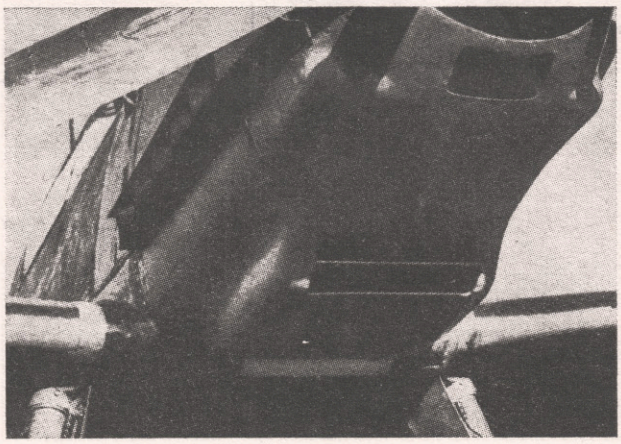


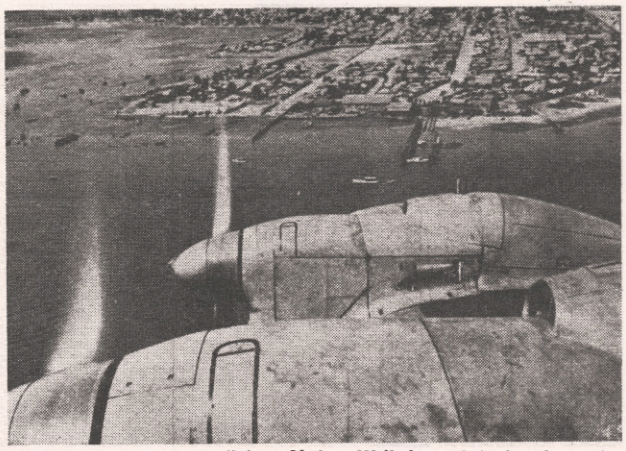
Clues Across

1. "Monoplane pilots need monoplane training."
9. A German aircraft constructor.
10. A wind—but not from Brooklands.
12. Fleet Air Arm fighters.
13. A tree.
14. A bombing sauce.
15. Aircraft materials conform to this (abrv.).
16. Come into view.
19. Favourite.
20. Meridionali.
21. Plane Spotter.
22. Universal.
25. Independent Air Command.
26. "The gearbox of the air" (abrv.).
27. Follows after (abrv.).
28. Qantas know it well.
29. Pull from the U.S.A.

Clues Down

1. Related to 1 Across.
2. A Royal Line.
3. This should be accurate.
4. Air inspection Directorate (Anag.).
5. "May Day."
6. Exempli gratia.
7. A "nasty" headache.
8. Succeeds but will not succeed in this.
11. Large scale American help.
14. Heinkel (abrv.).
17. At every station (abrv.).
18. Eight to a bird.
19. The Eagles have this.
21. Unconventional aero-motor.
22. "Guns or butter—bombs or . . ."
23. In times of peace denotes a gallant ally.
24. A Latin prefix.
25. All performance figures are reduced to this (abrv.).





WHERE AND WHAT?—Two more posers to test detailed knowledge. The problems last week were (left) a Vickers Wellesley and (right) the wing tip of a Supermarine Spitfire I. The photograph described as a Blenheim I, published on Feb. 13, should have been identified as a Blenheim IV.

Printed in England and Published Weekly by the Proprietors, TEMPLE PRESS LTD., BOWLING GREEN LANE, LONDON, E.C.1.
AGENTS ABROAD—U.S.A.—The International News Co., New York, N.Y. CANADA—W. Dawson & Sons (Subscription Service), Ltd., Toronto, etc.; Imperial News Co., Ltd., Toronto, etc.; Gordon & Gotch, Ltd., Toronto. AFRICA—Central News Agency, Ltd., Cape Town, etc., W. Dawson & Sons (S.A.), Cape Town. INDIA—A. H. Wheeler & Co., Allahabad, Bombay, Calcutta, etc. AUSTRALASIA—Gordon & Gotch (A'sia), Ltd., Sydney, Melbourne, Adelaide, Brisbane, Perth, Launceston, Wellington, etc.
Subscription 17/4 per annum, including postage. Other periods at the same rate.